

a quick disconnection and connection of the foam headers **50a, 50b** from the air lines **40a, 40b** and foam tubing **70a, 70b** for cleaning the system after use to remove the foaming solution **80** residue in the foam headers **50a, 50b**, bottles **60** and foam tubing **70a, 70b**. See FIG. 3. These *quick connect fittings 45a, 45b, 75a, 75b* may also allow for the air line **40a, 40b** to be connected directly to the foam tubing **75a, 75b** using a quick connect fitting adapter (not shown) to purge the foam tubing **70a, 70b** of residual foam **84** in the foam tubing **70a, 70b** with air. The foam tubing **70a, 70b** should be flexible, which would allow them to remain attached to the boom sprayer apparatus **150** when the boom arms **152, 154** are folded into a stored position after use. Swimming pool hose has been found to be most suitable as the foam tubing **70a, 70b** or otherwise best presented as one inch clear plastic tubing to monitor the flow and quantity of foam being disposed to the vertical drop tubes **74a, 74b**.

Presented in best mode, each of the bottles **60** should be no less than three liter plastic bottles with a threaded neck **62**, as shown in FIG. 3, adapted to engage the inner threaded bottle engaging caps **52a, 52b**, with an O-ring **59a, 59b** in each bottle engaging cap **52a, 52b** to seal the threaded neck with the bottle engaging caps **52a, 52b**. The *quick connect fittings 45a, 45b, 75a, 75b should be a brass product or other non-corrosive product.* The three way power switch **20** would be best installed at or near a control panel **110** on the farm or garden tractor **100**, FIG. 1, for ease of access by the operator, and is generally provided in a housing **22**, as shown in FIG. 4 of the drawings.” (Italicized portion added for emphasis and to identify the claimed subject matter reference in the specification.)

Figure 2 clearly indicates reference numbers **45a** and **45b** or the *quick connect fittings* attaching the air lines **40a, 40b** to the bottle engaging caps **52a, 52b**, and the reference numbers **75a** and **75b** or the other *quick connect fittings* connecting the foam tubing **70a, 70b** to the bottle engaging caps **52a, 52b**. Likewise, FIG. 3 also indicates reference numbers **45a, 45b, 75a** and **75b**

in that figure. They are not indicated in the general reference FIGS. 1 and 4.

Therefore, Applicant does not know why said objection to the alleged lack of the quick connect fittings is included in this office action, as there is clear reference to the quick connect fittings in the specification and in FIGS. 2 and 3. Those skilled in the art may choose to further define the quick connect fittings, but proper reference is made in the specification as well as the drawings to the quick connect fitting in Claim 3. Neither cancellation of the quick connect fitting from Claim 3 nor a modification to the drawing figures is required.

If the Examiner still contends that the objection is valid, specific clarification after review with the supervisor of the art group is requested and such further clarification made prior to any final office action.

Claims

The rejections to Claims 1-3, as specified in the Office Action are noted, and explanations and corrections in accordance with the questions and rejections raised by the Examiner are contained in the Amendments section within this Response. Such corrections and the amendments avoid the rejections of 35 USC § 112, raised by the Examiner and do not add any new matter to the invention being claimed, thus making such Claims conform to the arguments of the Examiner and place the Claims in proper form for issuance. Changes have been made pursuant to Paragraphs 2-3 and 5-6.

Exception is taken as to Paragraph 4 and objection raised as to the use of the word “low” in disclosing various “low voltage” components in Claims 1 and 2.

“Low” as used in the claims is derived from the specification which uses that word in conjunction with the following disclosed, referenced and claimed components:

low voltage DC electrical system **110**;

low voltage DC air compressors **30a, 30b**; and

low voltage electrical wiring 24.

It is well known in the art that nearly every lawn and garden tractor on the planet uses a low voltage DC electrical system 110. One does not even have to be “skilled in the art” to know this. Garden tractors or lawn tractors do not use high voltage, and it is quite impractical to use AC current requiring an electrical extension cord while working on a farm, yard or garden. Lawn and garden tractors usually use either a 6 volt or a 12 volt DC battery to operate a small gas combustion engine.

It would be completely false to assert that “the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.” Applicant has defined the most widely used “low voltage DC” power plant available on the lawn and garden tractor to be used in conjunction with his disclosed invention and then further defined the reference components, i.e. the air compressors and the wiring connecting them based upon the power plant of the lawn and garden tractor. A low voltage DC power supply would provide power to a low voltage air compressor through low voltage wiring. There is no confusion, and for the Examiner to claim such as the basis for an objection to Applicant’s use of the word “low” when in conjunction with the word “voltage” in every case pertaining to lawn and garden tractor power supplies is wholly inappropriate. Therefore, Applicant has not made changes to extricate the word “low” from Claims 1 or 2.

As to the rejection of Claims 1-3 based upon 35 USC 103(a), based on the prior art references of Lloyd and Cooke, Applicant takes issue and contends that such rejections are inappropriate. In order for the Examiner’s rejections to be held valid, the following standard must be met.

“To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references

when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claim combination and the reasonable expectation of its success must both be found in the prior art, and not based on the applicant's disclosure." MPEP § 2142.

Lloyd does disclose a boom sprayer having booms, marking devices that spray an aluminum pigmented oil based spray, a marker storage tank which contains the paint/oil compound and a boom selector switch to select which marking device is to be active depending on the margin to be marked. Lloyd does not teach an air compressor, a check valve and a regulator connected to each said air compressor, a foam header having an inlet chuck receiving compressed air from said air line into a hollow central tube, a foaming solution bottle attached to said foam headers, a central tube from said foam header extending to said bottom of said foaming solution bottle when said foam header is attached to said foaming solution bottle, an outlet chuck on each said foam header integrating with said headspace providing an outlet for said foam, foam tubing attached to each said outlet chuck further attached to the boom sprayer apparatus, nor a vertical drop tube connecting to each said foam tube from which foam is dispensed. Combining Cooke with Lloyd does not disclose the full present marking apparatus, as Cooke uses exhaust gas or possibly compressed gas, without disclosing a means or integration of a compressed air source. Cooke does not disclose the header as indicated in the present marking apparatus. Cooke does not have any electrically active application in producing the generated gas being fed through the header into the bottle to generate the foam from the foaming solution in the bottle.

Most certainly, they do not combine to form the claimed apparatus of Claim 2 or 3 which disclose the integration of the foaming solution bottle to the header, the header providing the air inlet and the foam outlet within the same header, the central tube going to the bottom of the bottle with the foam emanating from the outlet channel in the header, a left system independent from the right

system, i.e. bottle, header, inlet outlet foam tube, etc., each system operating independently to produce foam at each system end, or a replaceable bottle for each system to allow for the quick release and connection of a new foaming bottle containing solution within the system without disruption of the remaining system. Neither Cooke or Lloyd have a header disclosed with the same component features as the present apparatus and they don't have a foaming solution bottle which is replaceable when its contents are expended.

In total, Cooke and Lloyd do not disclose a marking system which uses an electrically operated air compressor to create a foam solution dispensed at the end of a boom spray apparatus, the foam generated by applying compressed air through a central tube of a header extending into the bottom of a foaming solution bottle which compels foam upward into the headspace above the solution, expelling the generated foam through an outlet line in the same header through a foaming tube onto the ground and the outer margin of the boom arm at the edge of the treated area.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching, suggestion or incentive supporting the combination. *In Re Geiger*, 815 F.2d 686, 2 U.S.P.Q. 2d 1276 (C.A.F.C. 1987); *In Re Fine*, 837 F.2d 1071, 5 U.S.P.Q. 2d 1596 (C.A.F.C. 1988). Both the suggestion to make the claimed composition or device or carry out the claimed process and the reasonable expectation of success must be founded in the prior art. *In Re Vaack*, 947 F.2d 488, 20 U.S.P.Q. 2d 1438 (C.A.F.C. 1991). The art upon which the rejections are based do not fulfill this requirement and are clearly distinguishable.

Prior art references must either be in the field of Applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the Applicant was concerned, in order to be relied upon as a basis for the rejection of the claimed invention. *In re Oetiker*, 997 F.2d 1443, 24 USPQ2d 1443 (Fed.Cir. 1992). Lloyd paints an oil based line on the edge of a treated area, which

is completely outside the objectives of the present apparatus stated early on in the Specification, to eliminate colored sprays or dyes which discolor the treated area (Page 1, lines 12-15). It is also an entire system applied to an existing boom arm sprayer, not merely an isolated component with no disclosure as to the essential components of the invention, as is the Cooke appliance, which does not disclose a header in any way similar to the present apparatus header, which is an inlet and outlet in a singular embodiment injecting air into the bottom of a foaming bottle and releasing generated foam out the top of the header through an outlet connected to a foam tube.

“Obvious to try” is not a valid test of patentability, and in the present case, while it might be obvious to try Lloyd and Cooke to accomplish the task or method disclosed in the current invention, there is nothing to indicate the combined use of the Cooke tank to spray an oil based paint, or to try to use foam from the Cooke bottle into the sprayer system of Lloyd, because the sprayer end of the Lloyd system would return the foam to a liquid due to the end compression of the sprayer tip. *See, In Re Mercier*, 515 F.2d 1161, 185 U.S.P.Q. 774 (C.C.P.A. 1975). There must be a suggestion or teaching that the claimed novel form of the prior art could or should be used. *See, In Re Cofer*, 354 F. 2d 664, 148 U.S.P.Q. 268 (C.C.P.A. 1966). There must be a “reasonable expectation of success” specified in the prior art usage in the current art. *Fritsch v. Lin*, 21 U.S.P.Q.2d 1739 (B.P.A.I. 1991). It is fundamental that claims are to be construed in the light of the specification and both are to be read with a view to ascertain the invention. *Transitron Electronic Corp. v. Hughes Aircraft Co.*, 487 F. Supp. 855, 205 USPQ 799 (1980, DC Mass.).

As to the particular vernacular of Claim 1 of the invention, the phraseology employed in the claims is the “guiding star” in the construction of the patent. *Super Products Corp. v. D P Way Corp.*, 546 F2d. 748, 756, 192 USPQ 417, 423-424 (1976, CA7 Wis.). Every term in claim 1 and 2 provides guidance as to the nature of the components claimed and their interrelationship. Those

relative component relationships are not found in Cooke and Lloyd when combined. There is nothing wrong in defining something by what it does rather than by what it is. *ReEcherd*, 471 F2d. 632, 176 USPQ 321 (1973, CCPA); *Re Swinehart*, 439 F2d. 210, 169 USPQ 226 (1971, CCPA); *Re Fuetterer*, 319 F2d. 259, 138 USPQ 217 91963, CCPA). The present apparatus does what it does by using what components provide for it to do. It's a simple system and intended to be just that with the few disclosed components claimed - no more and no less, and it adapts quite easily to an existing lawn and garden tractor because of the precise nature and relationship of its components. A switch, some wire, a couple of compressors, an air line, a header, a bottle of foaming solution, a foam tube and you have an apparatus adapted to a lawn and garden tractor with a boom arm sprayer attachment.

The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin* 170 USPQ 209 (CCPA 1971). Lloyd and Cooke are very nice inventions, but they do not and cannot provide for a valid rejection of the present foaming apparatus as they do not contain all the disclosed components of the present apparatus. Therefore, withdrawal of the rejections of Claims 1-3 is requested.

AMENDMENTS

Drawings

Applicant contends that no drawing changes are required as indicated in the Remarks section above.